



# **CITY OF DANIA BEACH, FLORIDA CDBG SOLAR STREET LIGHTS**

## **City of Dania Beach Bid No. 13-017**

Prepared by

City of Dania Beach Public Services Department  
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and

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## SECTION 01010 - SUMMARY OF WORK

### PART 1 - GENERAL

#### 1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. The WORK of this Contract comprises **of furnishing and installation of solar powered lighting systems and associated poles. The solar lighting systems and the attachment to the pole must be designed to meet or exceed ASCE/SEI 7-10 specifications for 150-mph, Exposure D, wind event.** The WORK will include but not be limited to site preparation, earthwork, complete solar powered lighting system, and site restoration.

B. All work falls under Community Development Block Grant (CDBG) Census Tract Area 805. The work covers the installation of solar powered street lights, and poles.

#### 1.02 STANDARD SPECIFICATION

A. Except as noted, all materials and workmanship shall meet the requirements of the latest editions of the following publications:

1. The Florida Department of Transportation "Standard Specifications for Road and Bridge Construction, and its supplements;
2. The Florida Department of Transportation "Roadway and Traffic Design Standards";
3. The Florida Building Code, latest edition at time of bid; and
4. ASCE/SEI Wind loading ASCE 7-10

#### 1.03 INTERFERENCE WITH WORK ON UTILITIES

The CONTRACTOR shall cooperate fully with all utility forces of the CITY or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the WORK, and shall schedule the WORK so as to minimize interference with said relocation, altering, or other rearranging of facilities.

#### 1.04 WORK SEQUENCE

A. The CONTRACTOR shall schedule and perform the WORK in such a manner as to result in the least possible disruption to the public's use of roadways, driveways, and utilities. Utilities shall include but not be limited to water, sewerage, drainage structures, ditches and canals, gas, electric, television and telephone. Prior to commencing with the WORK, CONTRACTOR shall perform a location investigation of existing underground utilities and facilities in accordance with the Section entitled "Protection of Existing Facilities" and shall have obtained all required permits and permissions. CONTRACTOR shall also deliver written notice to the CITY, CONSULTANT and property occupants (private and public) of all planned disruption to roadway, driveways, and utilities **72 hours in advance** of disruption.

B. CONTRACTOR shall sequence the WORK so as to minimize impact on residents. CONTRACTOR shall notify schools, the City's Fire and Police Department, and the Post Office **14 days prior** to disruption of roadways.

C. In addition, the following restrictions shall be maintained:

1. All affected residents and property owners shall be notified in writing **a minimum of two (2) weeks prior** to any disruption to or construction in road right-of-ways adjacent to

their homes. The notification shall also indicate any special parking or traffic conditions that will affect residents.

2. Transportation provisions for handicapped or disabled residents shall be made by the CONTRACTOR if construction prevents access to homes.

D. Substantial Completion: Project Substantial Completion, as defined in the General Conditions, shall be achieved within **60 calendar days** of the Notice to Proceed.

E. Final Completion: Project Final Completion, as defined in the General Conditions, shall be achieved within **75 calendar days** of the Notice-to-Proceed.

#### 1.05 TRAFFIC CONTROL

A. The CONTRACTOR shall submit a conceptual Traffic Control Plan at the Pre-Construction Conference. This preliminary plan shall identify the phases of construction that the CONTRACTOR plans to proceed with and identify traffic flows during each phase. The CONTRACTOR will be required to submit a detailed plan showing each phase's Maintenance and Protection Plan prior to starting construction of any phase.

B. The "Maintenance of Traffic" plan shall address pedestrian traffic as well as vehicular traffic. As a minimum, the plan shall address the following pedestrian requirements:

1. A safe walk route for all schools within the vicinity of the construction zone shall be maintained during the arrival and dismissal of school. CONTRACTOR shall not block bus access to schools during school hours.

2. In the case that a designated crossing of any portion of the designated walk route can not be maintained, then the CONTRACTOR shall notify the applicable "School Safety Coordinator" a **minimum of ten (10) working days** prior to ceasing that route so that an alternate route can be established with the School and the Enforcing agency.

C. The CONTRACTOR, at all times, shall conduct the work in such a manner as to insure the least obstruction to traffic as is practical. Convenience of the general public and of the residents adjacent to the work shall be provided for in a satisfactory manner, as determined by the CITY.

D. Sidewalks, gutters, drains, fire hydrants and private drives shall, insofar as practical, be kept in condition for their intended uses. Fire hydrants on or adjacent to the work shall be kept accessible to fire apparatus at all times, and no material or obstruction shall be placed within twenty (20) feet of any such hydrant.

E. Construction materials stored upon the public street shall be placed so as to cause as little obstruction to the general public as is reasonably possible.

F. Streets shall not be closed. The WORK must be conducted with the provision for a safe passageway for traffic at all times. The CONTRACTOR shall make all necessary arrangements with the jurisdictional agency concerning maintenance of traffic and selection of detours required.

G. The CONTRACTOR shall furnish a sufficient number of protective devices to protect and divert the vehicular and pedestrian traffic from working areas closed to traffic, or to protect any new work. Failure to comply with this requirement will result in the shutdown of the work until the CONTRACTOR provides the necessary protection.

#### 1.06 WORK SCHEDULE

A. Time is of the essence in completing this project. Because time is of the essence, the CONTRACTOR shall commit the necessary resources to this project to complete it in a timely manner. Note that a typical workday will be based on hours between 7:30 am and 4:30 pm, Monday through Friday, excluding holidays. If the CONTRACTOR wishes to work longer hours

than those specified herein, it shall request so, in writing, by Friday of each week. Work completed other than regular working hours should be easily observable by CITY and/or CONSULTANT staff on the subsequent day. If the CONTRACTOR proposes to complete work that will be after normal working hours, it shall reimburse CITY for costs associated with the observation of such work. The Construction progress will be measured with the construction schedule submitted by the CONTRACTOR. If the CONSULTANT determines that the CONTRACTOR does not meet the CPM as specified in the Section entitled "Schedules and Reports", the CONTRACTOR will be required to commit those resources necessary to ensure the completion of the project in a timely manner. All costs incurred to implement measures to complete the WORK in a timely manner will be borne by the CONTRACTOR.

#### 1.07 COMPUTATION OF CONTRACT TIME

It is the CONTRACTOR'S responsibility to provide clear and convincing documentation to the CONSULTANT as to the effect additional WORK will have with respect to additional contract time extension requirements. If additional quantities of WORK can be carried out concurrent with other existing construction activities without disrupting the critical path of the project then no contract time extension will be granted. CONTRACTOR is obligated to provide documentation to the CONSULTANT if additional elements of WORK affect the critical path of the project. If WORK set forth in the original scope of the project is deleted, the contract time may be reduced. This contract is a calendar day contract. While the CONTRACTOR may be granted time to suspend WORK operations for vacations or holidays, contract time will not be suspended. During suspensions, CONTRACTOR shall be responsible for all maintenance of traffic and liability without additional compensation from the CITY. In addition, CONTRACTOR shall comply with timely notice requirements as specified in the General Conditions.

#### 1.08 CONTRACTOR USE OF PREMISES

The CONTRACTOR's use of the project site shall be limited to its construction operations. Storage of materials will be arranged for by the CONTRACTOR and a copy of an agreement for use of other property shall be furnished to the CONSULTANT. Note that staging areas on the project site are limited to the CITY's right-of-way. Other areas required for material storage must be arranged and paid for by the CONTRACTOR, as a part of its base bid.

#### 1.09 UTILITY LOCATIONS

A. Existing utility lines in the project area have **NOT** been shown on the plans. **It shall be the CONTRACTOR'S responsibility to identify and locate all underground or overhead utility lines or equipment affected by the project.** No additional payment will be made to the CONTRACTOR because of location of utilities and damages suffered as a result thereof of lines shown on the plans.

B. The CONTRACTOR shall notify each utility company involved at **least thirty (30) days prior** to the start of construction to arrange for positive underground location, relocation or support of its utility where that utility may be in conflict with or endangered by the proposed construction. Relocation of water mains or other utilities for the convenience of the CONTRACTOR shall be paid for by the CONTRACTOR. All charges by utility companies for temporary support of their utilities and permanent utility relocations to avoid conflict shall be the responsibility of the CONTRACTOR and the utility company involved.

C. The CONTRACTOR shall schedule and coordinate its WORK in such a manner that it is not delayed by the utility companies relocating or supporting their utilities. No compensation will be paid to the CONTRACTOR for any loss of time or delay.

D. All overhead, surface or underground structures and/or utilities encountered are to be carefully protected from damage or displacement. All damage to said structures and/or utilities is to be completely repaired within a reasonable time; needless delay will not be tolerated. The CITY reserves the right to remedy any damage by ordering outside parties to make repairs at the expense of the CONTRACTOR. All repairs made by the CONTRACTOR are to be made to the satisfaction of the utility Owner and shall be inspected by a representative of the utility Owner and the CITY.

E. The CONTRACTOR should be aware that the CITY provides a free locating service for City-owned utilities for CONTRACTORS and excavators: Within forty-eight (48) hours before excavating, the CONTRACTOR should call the CITY, and a locator will be dispatched to the WORK location. CONTRACTOR shall reasonably notify other utility companies not included in the CITY location service, these include Florida Power and Light, cable, gas, etc.

#### 1.10 EQUIPMENT

All equipment necessary and required for the proper construction of all facilities shall be on the construction site, in first-class working condition.

#### 1.11 STORAGE SITES

The CONTRACTOR shall furnish, at its expense, properly zoned areas suitable for field office, material storage and equipment service and storage. No material may be stored in the public right of way without prior authorization by the agency having jurisdiction. The CONTRACTOR shall keep these areas in a clean and orderly condition so as not to cause a nuisance or sight obstruction to motorists or pedestrians.

#### 1.12 EXCESS MATERIAL

All vegetation, debris, concrete or other unsuitable materials shall be disposed of off-site, within 24 hours, in approved areas provided by the CONTRACTOR. Storage of unsuitable materials on site shall not be allowed. All unsuitable materials are to be removed from work site as they are generated. Any excess material desired to be retained by the CITY shall be delivered by the CONTRACTOR to a designated area within a 5 mile radius of the project, at no extra cost to the CITY.

#### 1.13 ENVIRONMENTAL PROTECTION

The CONTRACTOR shall furnish all labor and equipment and perform all WORK required for the prevention of environmental pollution during and as a result of the WORK under this contract. For the purpose of this contract, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life, affect other species of importance to man, or degrade the utility of the environment for aesthetic and recreational purposes. The control of environmental pollution requires consideration of air, water, land and involves noise, solid waste management and management of radiant energy and radioactive materials, as well as other pollutants.

END OF SECTION

## SECTION 01025 - MEASUREMENT AND PAYMENT

### PART 1 - GENERAL

#### 1.01 THE REQUIREMENT

A. Payment for various items of the Bid Schedule, as further specified herein, shall include all compensation to be received by the CONTRACTOR for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor operations and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the WORK all in accordance with requirements of the Contract Documents, including all appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA). No separate payment will be made for any item that is not specifically set forth in the Bid Schedule, and all costs therefore shall be included in the prices named in the Bid Schedule for the various appurtenance items of work.

B. Payment for the various items of the Bid Schedule shall constitute full compensation for CONTRACTOR's superintendent at the job site full-time during construction, for furnishing and installing all materials complete in place including but not limited to power units, lamp reflector, controller, battery, battery enclosure, brackets and arms, vandal resistance, and any other required appurtenances. Payment shall including complete restoration; including replacement of sod, concrete or any other existing condition, including all earthwork, trench excavation as shown on the Drawings, removal and disposal of waste, unsuitable and excess material, all backfill and compaction of native material, and dewatering as required; including potholing to verify locations of existing utilities; the restoration of interfering portions of existing service and utility lines that are not included in other bid items and shown on the Drawings; and restoration of all improvements incidental to construction for which there are no other bid items; including but not limited to, sprinkler systems, drainage systems, guardrails, landscaping, fences, curbs and gutters, and all other work not included in other bid items.

C. No separate payment for restoration will be made unless specifically shown on the plans or directed by the CONSULTANT. All bid items shall include restoration.

D. The CONTRACTOR's attention is called to the fact that the quotations provided for the various bid items on the Bid Schedule are intended to establish a total price for completing the Work in its entirety. Should the CONTRACTOR feel that the cost for any item of Work has not been established by the Schedule of Payment Items in this Section, it shall include the cost for that Work in some other applicable bid item, so that its proposal for the project does reflect its total price for completing the Work in its entirety.

#### 1.02 MAINTENANCE OF TRAFFIC

Payment for maintenance of traffic will be made at the lump sum price named in the Bid Schedule. Payment for maintenance of traffic will be made in equal monthly amounts during the duration of the contract time.

#### 1.03 FURNISH AND INSTALL SOLAR POWERED LIGHT SYSTEM

A. Measurement for payment to furnish and install solar powered light system will be based upon actual quantity, each of such solar powered light complete system furnished and installed, all in accordance with the requirements of the Contract Documents.

B. Payment for furnishing and installing solar powered light system will be made at the unit price each, named in the Bid Schedule which price shall constitute full compensation for the completed

installation of the solar powered light system, including labor, material and testing per the manufacturer instructions.

#### 1.04 FURNISH AND INSTALL LIGHT POLE

A. Measurement for payment to furnish and install light pole will be based upon actual quantity, each of such light pole furnished and installed, all in accordance with the requirements of the Contract Documents.

B. Payment for furnishing and installing light pole will be made at the unit price each, named in the Bid Schedule which price shall constitute full compensation for the completed installation of the light pole, including locating existing utilities, labor and material.

#### 1.05 PERMIT FEE ALLOWANCE

A. Measurement for payment for permit fees will be based upon the actual permit fees required by the CONTRACTOR from the agency having jurisdiction for construction of the project, all in accordance with the Contract Documents. The allowance permit fee amount shown on the Bid Schedule is an estimate of permit fees required for the project and is cost pass through item. These permit fees are based on unit price per item and CITY will reconcile the actual cost with the CONTRACTOR by change order. The CONTRACTOR shall produce documentation upon request verifying actual cost. Only permit fees substantiated and approved by the CITY will be paid as part of this bid item. Amounts remaining unused in this allowance shall be credited back to CITY at project completion.

END OF SECTION –



## SECTION 01090 - REFERENCE STANDARDS

### PART 1 GENERAL

#### 1.01 THE REQUIREMENT

A. Titles of Sections and Paragraphs: Captions accompanying specification sections and paragraphs are for convenience of reference only, and do not form a part of the Specifications.

B. Applicable Publications: Whenever in these Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the work is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the Drawings shall be waived because of any provision of, or omission from, said standards or requirements.

C. Specialists, Assignments: In certain instances, specification text requires (or implies) that specific work is to be assigned to specialists or expert entities, who must be engaged for the performance of that work. Such assignments shall be recognized as special requirements over which the CONTRACTOR has no choice or option. These requirements shall not be interpreted so as to conflict with the enforcement of codes and similar regulations governing the work; also they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of contract requirements remains with the CONTRACTOR.

#### 1.02 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Without limiting the generality of other requirements of the Specifications, all work specified herein shall conform to or exceed the requirements of applicable codes and the applicable requirements of the following documents.

B. References herein to "Building Code" shall mean "Florida Building Code". Reference to "Uniform Building Code" shall mean Uniform Building Code of the International Conference of Building Officials (ICBO). Similarly, references to "Mechanical Code" or "Uniform Mechanical Code," "Plumbing Code" or "Uniform Plumbing Code," "Fire Code" or "Uniform Fire Code," shall mean Uniform Mechanical Code, Uniform Plumbing Code and Uniform Fire Code of the International Conference of the Building Officials (ICBO). "Electric Code" or "National Electric Code (NEC)" shall mean the National Electric Code of the National Fire Protection Association (NFPA). The latest edition of the codes as approved by the Municipal Code and used by the local agency as of the date that the WORK is advertised for bids, as adopted by the agency having jurisdiction, shall apply to the WORK herein, including all addenda, modifications, amendments, or other lawful changes thereto.

C. In case of conflict between codes, reference standards, drawings and the other Contract Documents, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the CONSULTANT for clarification and directions prior to ordering or providing any materials or furnishing labor. The CONTRACTOR shall bid to the most stringent requirements.

D. The CONTRACTOR shall construct the work specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed herein.

E. Applicable Standard Specifications: References in the Contract Documents to "Standard Specifications" or SSPWC shall mean the Standard Specifications for Public Works Construction, 1991 Edition.

F. References herein to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

G. References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

H. Reference the section entitled "Summary of Work" for additional requirements.

END OF SECTION

## SECTION 01530 - PROTECTION OF EXISTING FACILITIES

### PART 1 – GENERAL

#### 1.01 THE REQUIREMENT

A. The CONTRACTOR shall protect all existing utilities and improvements not designated for removal including, but not limited to, compliance with the requirements of Chapter 556, Florida Statutes (the Underground Facility Damage Prevention and Safety Act), as same may be amended from time to time, and shall restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the Contract Documents.

B. The CONTRACTOR shall verify the exact locations and depths of all utilities shown and the CONTRACTOR shall make exploratory excavations of all utilities that may interfere with the WORK. All such exploratory excavations shall be performed as soon as practicable after award of the contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the CONTRACTOR's WORK. When such exploratory excavations show the utility location as shown to be in error, the CONTRACTOR shall so notify the CONSULTANT.

C. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility.

#### 1.02 RIGHTS-OF-WAY

The CONTRACTOR shall not do any WORK that would affect any oil, gas, sewer, or water pipeline; any telephone, telegraph, or electric transmission line; any fence; or any other structure, nor shall the CONTRACTOR enter upon the rights-of-way involved until having secured authority therefore from the proper party. After authority has been obtained, the CONTRACTOR shall give said party due notice of its intention to begin WORK, if required by said party, and shall remove, shore, support or otherwise protect such pipeline, transmission line, ditch, fence, or structure or replace the same.

#### 1.03 PROTECTION OF STREET OR ROADWAY MARKERS

The CONTRACTOR shall not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper authorization. No pavement breaking or excavation shall be started until all survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced. All survey markers or points disturbed by the CONTRACTOR shall be accurately restored after all streets or roadway resurfacing has been completed.

#### 1.04 RESTORATION OF PAVEMENT

A. General: All paved areas including asphaltic concrete berms cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit. All temporary and permanent pavement shall conform to the requirements of the affected pavement owner. All pavements which are subject to partial removal shall be neatly saw cut in straight lines.

B. Temporary Resurfacing: Wherever required by the public authorities having jurisdiction, the CONTRACTOR shall place temporary surfacing promptly after backfilling and shall maintain

such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements.

C. Permanent Resurfacing: In order to obtain a satisfactory junction with adjacent surfaces, the CONTRACTOR shall saw, cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement as follows:

1. Pavement shall be restored at a minimum straight and parallel to the existing trench line along the length of the trench, at a minimum of two feet beyond the widest part of disturbed asphalt.
2. If final restored pavement falls within two feet of existing or proposed cuts, CONTRACTOR shall pave to the curb.

D. Restoration of Sidewalks or Private Driveways: Wherever sidewalks or private roads have been removed for purposes of construction, the CONTRACTOR shall place suitable temporary sidewalks or roadways promptly after backfilling and shall maintain them in satisfactory condition for the period of time fixed by the authorities having jurisdiction over the affected portions before proceeding with the final restoration or, if no such period of times is so fixed, the CONTRACTOR shall maintain said temporary sidewalks or roadways until the final restoration thereof has been made.

#### 1.05 EXISTING UTILITIES AND IMPROVEMENTS

A. General: The CONTRACTOR shall protect all Underground Utilities and other improvements which may be impaired during construction operations. It shall be the CONTRACTOR's responsibility to ascertain the actual location of all existing utilities and other improvements that will be encountered in its construction operations, and to see that such utilities or other improvements are adequately protected from damage due to such operations. The CONTRACTOR shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.

B. CITY's Right of Access: The right is reserved to the CITY and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the WORK of this Contract.

C. Approval of Repairs: All repairs to a damaged utility or improvement are subject to inspection and approval by an authorized representative of the utility and/or CITY and the ENGINEER before being concealed by backfill or other work.

D. Maintaining in Service: All oil and gasoline pipelines, power, and telephone or the communication cable ducts, gas and water mains, irrigation lines, sewer lines, storm drain lines, poles, and overhead power and communication wires and cables encountered along the line of the WORK shall remain continuously in service during all the operations under the Contract, unless other arrangements satisfactory to the CITY are made with the OWNER of said pipelines, duct, main, irrigation line, sewer, storm drain, pole, or wire or cable. The CONTRACTOR shall be responsible for and shall repair all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.

E. Existing Water Services: CONTRACTOR shall protect and provide temporary support for existing water services. Any water service damaged by the CONTRACTOR shall be replaced at the CONTRACTOR's expense, with a new water service complete with new water main tap.

## 1.06 TREES WITHIN STREET RIGHTS-OF-WAY AND PROJECT LIMITS

A. General: CONTRACTOR shall exercise all necessary precautions so as not to damage or destroy any trees or shrubs, including those lying within street rights-of-way and project limits. CONTRACTOR shall not trim or remove any trees unless such trees have been approved for trimming or removal by the jurisdictional agency or CITY. All existing trees and shrubs which are damaged during construction shall be trimmed or replaced by the CONTRACTOR or a certified tree company under permit from the jurisdictional agency and/or the CITY. Tree trimming and replacement shall be accomplished in accordance with the following paragraphs.

B. Trimming: Symmetry of the tree shall be preserved; no stubs or splits or torn branches left; clean cuts shall be made close to the trunk or large branch. Spikes shall not be used for climbing live trees. All cuts over 1-1/2 inches in diameter shall be coated with an asphaltic emulsion material.

C. Replacement: The CONTRACTOR shall immediately notify the jurisdictional agency and/or the CITY if any tree is damaged by the CONTRACTOR's operations. If, in the opinion of said agency or the CITY, the damage is such that replacement is necessary, the CONTRACTOR shall replace the tree at its own expense. The tree shall be of a like size and variety as the tree damaged, or, if of a smaller size, the CONTRACTOR shall pay to the owner of said tree a compensatory payment acceptable to the tree owner, subject to the approval of the jurisdictional agency or CITY.

## 1.07 NOTIFICATION BY THE CONTRACTOR

A. Prior to any excavation in the vicinity of any existing underground facilities, including all water, sewer, storm drain, gas, petroleum products, or other pipelines; all buried electric power, communications, or television cables; all traffic signal and street lighting facilities; and all roadway and state highway rights-of-way the CONTRACTOR shall notify the Sunshine State One Call System, and shall provide notice in accordance with Chapter 556, Florida Statutes.

## 3.01 GENERAL

A. Install facilities in a neat and reasonable uniform appearance, structurally adequate for required purposes.

B. Maintain barriers during entire construction period.

C. Relocate barriers as required by progress of construction.

## 3.02 TREE AND PLANT PROTECTION

A. Preserve and protect existing trees and plants adjacent to WORK areas.

B. Consult with CITY's Representative and remove agreed-on roots and branches which interfere with WORK. CONTRACTOR will employ qualified tree surgeon to remove branches, and to treat cuts.

C. Protect root zones of trees and plants.

1. Do not allow vehicular traffic and parking.
2. Do not store materials or products.
3. Prevent dumping of refuse or chemically injurious materials or liquids.
4. Prevent ponding or continuous running water.

D. Carefully supervise all WORK to prevent damage.

E. Replace trees and plants which are damaged or destroyed due to WORK operations under this contract.

### 3.03 REMOVAL

A. Completely remove barricades, including foundations, when construction has progressed to the point that they are no longer needed, and when approved by CITY's Representative.

B. Clean and repair damage caused by installation, fill and grade areas of the site to required elevations and slopes, and clean the area.

### 3.04 MEASUREMENT AND PAYMENT

There shall be no special measurement or payment for the work under this section. It shall be included in the lump sum price bid for Item 1 - Mobilization.

- END OF SECTION -

## SECTION 01560 - TEMPORARY CONTROLS

### PART 1 - GENERAL

#### 1.01 THE REQUIREMENT

The CONTRACTOR shall provide and maintain methods, equipment, and temporary construction, as necessary, to provide controls over environmental conditions at the construction site and related area under CONTRACTOR's control. In addition, the CONTRACTOR shall remove physical evidence of temporary facilities at the completion of WORK.

#### 1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. All applicable sections of the Specifications.
- B. General conditions.

#### 1.03 NOISE CONTROL

A. The CONTRACTOR shall provide all necessary requirements for noise control during the construction period.

- 1. Noise procedures shall conform to all applicable OSHA requirements and local codes having jurisdiction on the work.
- 2. Noise levels during night time hours shall not exceed 55 db measured at the property line of a residence.

#### 1.04 PRECAUTIONS DURING ADVERSE WEATHER

- A. During adverse weather, and against the possibility thereof, the CONTRACTOR shall take all necessary precautions so that the Work may be properly done and satisfactory in all respects. The CONTRACTOR shall be responsible for all changes caused by adverse weather.
- B. The CITY may suspend construction operations at any time when, in its judgment, the conditions are unsuitable or the proper precautions are not being taken, whatever the weather conditions may be, in any season.

#### 1.05 HURRICANE AND STORM WARNINGS

The CONTRACTOR shall take all precautions necessary to protect the job site during hurricane and storm watches and warnings. CONTRACTOR shall submit a hurricane preparedness plan for review.

- END OF SECTION -

## SECTION 01570 - TRAFFIC REGULATIONS

### PART 1 - GENERAL

#### 1.01 THE REQUIREMENTS

A. The CONTRACTOR shall provide, operate and maintain equipment, services and personnel for traffic control and protective devices, as required to expedite vehicular traffic flow on haul routes, at site entrances, on-site access roads, and parking areas.

B. The CONTRACTOR shall remove temporary equipment and facilities when no longer required and restore grounds to their original or specified condition.

#### 1.02 RELATED WORK SPECIFIED ELSEWHERE

A. All applicable sections of the Specifications.

B. General Conditions of the Contract.

C. Summary of Work.

D. Temporary Controls.

#### 1.03 TRAFFIC SIGNALS BARRIERS AND SIGNS

The CONTRACTOR shall provide and operate traffic control and directional signals, furnish all barriers and/or signs as required to direct and maintain an orderly flow of traffic in all areas under CONTRACTOR's control, or affected by CONTRACTOR's operations, as required by jurisdictional agencies.

#### 1.04 FLAG PERSON / OFF-DUTY POLICE OFFICER OVERSIGHT

The CONTRACTOR shall provide a "trained" flag person in accordance with FDOT Standard Specifications for Road and Bridges, Section 102-3.2.4 or an off-duty police officer when construction operations encroach on traffic lanes unless otherwise specifically authorized by the CITY's Public Services Department.

#### 1.05 MAINTENANCE AND PROTECTION OF TRAFFIC

The CONTRACTOR shall provide all necessary traffic control devices to redirect, protect, warn or maintain existing vehicular and pedestrian traffic during the course of construction.

#### 2.01 MEASUREMENT AND PAYMENT

Payment for the work under this section shall be paid in the lump sum price bid for Maintenance of Traffic.

- END OF SECTION -



## SECTION 01600 - MATERIAL AND EQUIPMENT

### PART 1 - GENERAL

#### 1.01 THE REQUIREMENT

A. The CONTRACTOR shall ensure that all material and equipment incorporated into the work:

1. Conform to applicable specifications and standards.
2. Comply with size, make, type and quality specified, or as specifically approved in writing by the CONSULTANT.
3. Manufactured and fabricated products:
  - a. Design, fabricate and assemble in accord with the best engineering and shop practices.
  - b. Manufacture like parts of duplicate units to standard sizes and gauges to be interchangeable.
  - c. Two or more items of the same kind shall be identical, by the same manufacturer.
  - d. Products shall be suitable for service conditions.
  - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

#### 1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. All applicable sections of the Specifications.  
B. General conditions of the Contract.

#### 1.03 MANUFACTURER'S INSTRUCTIONS

A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, the CONTRACTOR shall obtain and distribute copies of such instructions to parties involved in the installation, including **two copies** to the CONSULTANT. In addition, the CONTRACTOR shall: maintain one set of complete instructions at the job site during installation and until completion.

B. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements.

1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with CONSULTANT for further instructions.
2. Do not proceed with work without clear instructions.

C. Perform work in accord with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by the Contract Documents.

#### 1.04 TRANSPORTATION AND HANDLING

A. The CONTRACTOR shall arrange deliveries of products in accordance with construction schedules, coordinate to avoid conflict with work and conditions at the site. Products shall be delivered to the job site on an "as needed" basis.

1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact with legible markings.
2. Immediately upon delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that products are properly protected and undamaged.
3. Materials shall not be strung out along installation routes for longer than two (2) weeks prior to installation.

B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

C. Coordinate deliveries to avoid conflict with Work and conditions at site:

1. Work of other contractors, or CITY.
2. Limitations of storage space.
3. Availability of equipment and personnel for handling products.
4. CITY's use of premises.

D. Deliver products in undamaged condition in original containers or packaging, with identifying labels intact and legible.

E. Partial deliveries of component parts of equipment shall be clearly marked to identify the equipment, to permit easy accumulation of parts and to facilitate assembly.

F. Immediately on delivery, inspect shipment to assure:

1. Product complies with requirements of Contract Documents and reviewed submittals.
2. Quantities are correct.
3. Containers and packages are intact, labels are legible.
4. Products are properly protected and undamaged.

G. Provide equipment and personnel necessary to handle products, including those provided by CITY, by methods to prevent soiling or damage to products or packaging.

H. Provide additional protection during handling as necessary to prevent scraping, marring or otherwise damaging products or surrounding surfaces.

I. Handle products by methods to prevent bending or overstressing.

J. Lift heavy components only at designated lifting points.

#### 1.05 STORAGE

A. The CONTRACTOR shall store products in accord with manufacturer's instructions, with seals and labels intact and legible.

1. Store products subject to damage by the elements in weather-tight enclosures.
2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
3. Store unpacked products on shelves, in bins or in neat piles, accessible for inspection.

B. Exterior Storage

1. Provide substantial platforms, blocking or skids to support fabricating products above ground, prevent soiling or staining. Cover products, subject to discoloration or deterioration from exposure to the elements, with impervious sheet coverings. Provide adequate ventilation to avoid condensation.
2. Store loose granular materials on solid surface such as paved areas, or provide plywood or sheet materials to prevent mixing with foreign matter.

- a Provide surface drainage to prevent flow or ponding of rainwater.
- b Prevent mixing of refuse or chemically injurious materials or liquids.

C. Stored Products shall be periodically inspected on a scheduled basis. The CONTRACTOR shall maintain a log of inspections and shall make said log available to the CONSULTANT on request.

D. The CONTRACTOR shall verify that storage facilities comply with supplier's product storage requirements, subject to CONSULTANT's review and acceptance.

E. The CONTRACTOR shall verify that Supplier required environmental conditions are maintained continually.

#### 1.06 MAINTENANCE OF STORAGE

A. The CONTRACTOR shall maintain periodic system of inspection of stored products on scheduled basis to assure that:

1. State of storage facilities is adequate to provide required conditions.
2. Required environmental conditions are maintained on continuing basis.
3. Surfaces of products exposed to elements are not adversely affected. Any weathering of products, coatings and finishes is not acceptable under requirements of Contract Documents.

#### 1.07 PROTECTION AFTER INSTALLATION

A. The CONTRACTOR shall provide protection of installed products to prevent damage from subsequent operations. Remove when no longer needed, prior to completion of work.

B. Control traffic to prevent damage to equipment and surfaces.

#### 2.01 MEASUREMENT AND PAYMENT

A. There shall be no special measurement or payment for the work under this section.

- END OF SECTION -

## SECTION 02010 - SUBSURFACE INVESTIGATION

### PART 1 - GENERAL

#### 1.01 THE REQUIREMENT

A. The CONTRACTOR shall provide all labor, materials, necessary equipment and services to complete the subsurface investigation work, as indicated on the drawings and/or as specified herein.

B. Subsurface investigation of existing conditions at the project site is the sole responsibility of the CONTRACTOR. In preparing its Bid, the CONTRACTOR shall make all subsurface or surface investigations necessary to provide proper background and knowledge to determine the nature and extent of work required.

**C. Unless otherwise noted elsewhere, neither the CITY nor the CONSULTANT shall provide subsurface information to the CONTRACTOR, and make no warranties or guarantees concerning the nature of materials to be encountered on the site.**

#### 2.01 MEASUREMENT AND PAYMENT

There shall be no special measurement or payment for the work under this section.

- END OF SECTION -

## SECTION 02222 - EXCAVATION AND BACKFILL FOR UTILITIES

### PART 1 -- GENERAL

#### 1.01 THE REQUIREMENT

The CONTRACTOR shall excavate, grade and backfill as required as per manufacturer recommendations and specified herein.

#### 1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Earthwork
- B. Site Grading

#### 1.03 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Codes: All codes, as referenced herein, are as specified in the Section entitled, "Reference Standards".
- B. Commercial Standards:

ASTM D 422 Method for Particle-Size Analysis of Soils.

ASTM D 698 Test Methods for Moisture-Density Relations of Soils and Soil Aggregate Mixtures, Using 5.5-lb (2.49-kg) Rammer and 12-in (304.8-mm) Drop.

ASTM D 1556 Test Method for Density of Soil in Place by the Sand-Cone Method.

ASTM D 1557 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in (457-mm) Drop.

ASTM D 2419 Test Method for Sand Equivalent Value of Soils and Fine Aggregate.

ASTM D 2922 Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

#### 1.04 SUBSURFACE INFORMATION

- A. The CONTRACTOR shall be responsible for anticipating subsurface conditions and shall provide positive control measures as required. Such measures shall ensure stability of excavations, groundwater pressure control, prevention of tanks, pipes, and other structures from being lifted by hydrostatic pressures, and avoiding the disturbance of subgrade bearing materials.

#### 1.05 PROTECTION OF PROPERTY AND STRUCTURES

- A. The CONTRACTOR shall, at its own expense, sustain in place and protect from direct or indirect injury, all pipes, poles, conduits, walls, buildings, and all other structures, utilities, and property in the vicinity of its Work. The CONTRACTOR shall take all risks attending the presence or proximity of pipes, poles, conduits, walls, buildings, and all other structures, utilities, and its Work. It shall be responsible for all damage, and assume all expenses, for direct or indirect injury and damage, caused by its Work, to any such pipe, structures, etc., or to any person or property, by reason of injury to them, whether or not such structures, etc., are shown on the Drawings.

- B. Barriers shall be placed at each end of all excavations and at such places as may be necessary along excavations to warn all pedestrian and vehicular traffic of such excavations. Barricades with flashing lights shall also be placed along excavation from sunset each day to sunrise of the next day until such excavation is entirely refilled, compacted, and paved. All excavations shall be

barricaded where required to meet OSHA, local and Federal Code requirements, in such a manner to prevent persons from falling or walking into any excavation within the site fenced property limits. No separate payment will be provided for barricades and/or barriers. Such costs shall be included in the bid costs for related construction items.

## 2.01 EXCAVATION

A. This work shall consist of the excavation of whatever substances shall be encountered to the depths required per the manufacturer's recommendation and supplier. Excavated materials not required for fill or backfill shall be removed from the work site as directed by the CONSULTANT and shall be considered to be a part of the bid price of the concrete pole for which excavation and backfill is required.

B. Excavation shall not be carried below the required depths per the manufacturers recommendation and supplier. Excess excavation below the required level shall be backfilled at the CONTRACTOR's expense with sharp sand, gravel or other suitable material thoroughly compacted and approved by the CONSULTANT.

C. Any unstable soil shall be removed and shall be replaced by material acceptable to the CONSULTANT. The removal and replacement of such unstable soil shall be considered to be part of the bid price of the concrete pole for which excavation and backfill is required.

D. Water shall not be permitted to accumulate in the excavated area. It shall be removed by pumping or other means as approved by the CONSULTANT. The removal of water shall be considered to be a part of the bid price of the concrete pole for which excavation and backfill is required.

E. Rock excavation shall include any rock encountered, which cannot be removed under normal operating conditions. Rock excavation shall be incidental to construction of all concrete poles and no separate payment will be made.

## 2.02 BACKFILLING

After concrete poles have been installed, the opening shall be backfilled with material free from large stones or clods of a quality acceptable to the CONSULTANT.

## 2.03 EXPLOSIVES

The use of explosives will not be permitted.

## 2.04 PAYMENT AND MEASUREMENT

No separate payment is provided for work covered by this Section. All costs in connection with Excavation and Backfilling, including testing, shall be included in the bid price of any item for which excavation and backfilling is required.

- END OF SECTION -

## SECTION 02500 - SURFACE RESTORATION

### PART 1 -- GENERAL

#### 1.01 THE REQUIREMENT

Items specified in this Section include repairs to paved, landscaped and/or grassed areas that may be damaged or disturbed by CONTRACTOR activities during prosecution of the Work.

#### 1.02 PROTECTION OF EXISTING IMPROVEMENTS

A. The CONTRACTOR shall be responsible for the protection of all pavements, landscaping and other improvements within the work area. All damage to such improvements, as a result of the CONTRACTOR'S operations, shall be repaired by the CONTRACTOR at its expense.

### PART 2 – PRODUCTS

#### 2.01 REPLACEMENT TREES, GROUND COVER AND SHRUBS

A. Replacement trees, ground cover and shrubs, for those damaged by the CONTRACTOR's operations, shall be of the same type and size, sound, healthy and vigorous, well branched and densely foliated when in leaf.

B. Replacement trees, groundcover and shrubs shall have healthy, well developed root systems and be free of disease and insect pests, eggs or larvae.

#### 2.02 PAYMENT AND MEASUREMENT

No separate payment is provided for work covered by this Section. All costs in connection with surface restoration shall be included in the bid price of each concrete pole to be installed.

- END OF SECTION -

## SECTION 16055 – SOLAR POWERED LIGHTING SYSTEMS

### PART 1 GENERAL

#### 1.01 SCOPE

The CONTRACTOR shall furnish all materials, parts, equipment and labor necessary for the erection and construction of the lighting, poles and electrical system as specified and/or implied by these plans, drawings and specifications. All materials for a complete and functional system shall be provided.

#### 1.02 COORDINATION

CONTRACTOR shall coordinate mounting location with CONSULTANT, utilities and the like and avoid conflicts.

#### 1.03 MATERIAL QUALITY

A. All materials supplied by the CONTRACTOR under the provisions of these specifications and drawings shall be new materials of the kind and character called for by the specifications. Defective equipment or material damaged in the course of installation or tests shall be replaced or repaired in a manner satisfactory to the CITY. All materials and equipment to be furnished under these specifications shall be the standard product of a manufacturer regularly engaged in the production of such material and shall be the manufacturer's current standard design.

B. Minimum submittal data:

1. Written statements of model number and manufacturer for all equipment bid.
2. Written Full Warranty from the manufacturer covering entire structure as outlined in specifications. Five (5) year minimum Full Warranty on complete system.
3. Certification by independent Professional Engineer (PE) of complete system including lighting system attachment to pole for State of Florida, 150-mph, Exposure D wind event.
4. Fixture Photometry Reports.

#### 1.04 CODES, PERMITS AND LICENSES

A. All work shall comply with the applicable rules of the National Electrical Code, the National Electrical Safety Code, the National Fire Codes, (published by the National Fire Protection Association), state and local codes and ordinances and the terms and conditions of the services of the electrical utility, as well as any other authorities that may have lawful jurisdiction pertaining to the work specified. None of the terms or provisions of this specification shall be construed as waiving any other rules, regulations or requirements of these authorities. The CONTRACTOR shall procure all necessary permits or licenses to carry out his work, and shall pay the lawful fee therefore, as well as for any inspection fee or the cost of any certificate of approval.

B. All electrical materials used shall be Underwriter Laboratory (UL) listed.

C. In any instance where these specifications call for materials for construction of a better quality or larger size than required by the codes, the provisions of these specifications shall take precedence. Conversely, should the codes call for better quality or larger size, the codes will govern.

#### 1.05 FINAL APPROVAL



The entire electrical system shall be tested by the CONTRACTOR in the presence of the CITY/CONSULTANT.

## PART 2 DECORATIVE STREET LAMP PRODUCTS

### 2.01 DECORATIVE SOLAR LIGHT SYSTEM

- A. Decorative solar light system shall be Urban Series by Beacon or Approved Equal. (21"MRDS Shade Style, 18W )
- B. Fixture installed at 12 ft mounting height.
- C. Batteries shall be installed internally within the pole (e.g. base collar).
- D. Housing and pole shall be aluminum for corrosion resistant.
- E. Finish shall be black.
- F. All fasteners shall be stainless steel.
- G. Requirements for panel, controller/driver, battery, wire/connectors, and warranties shall meet criteria listed in the following sections.

### 2.02 MOUNTING POLE

- A. The mounting pole shall be composite material or aluminum.
- B. Pole can be direct burial or bolt-down. Embedment depth or foundation must be design by Florida Licenses Professional Engineer and shall meet all applicable wind loads.
- C. Furnish each pole with a 2"x4" (max) aluminum identification tag. Submit details for approval. Secure to pole at 5'-0" height with 0.125" stainless steel rivets or screws. Include the following information: Manufacturer's Name, "THIRD-GENERATION" – Pole Number, "IN CASE OF LIGHT OUTAGE, PLEASE CONTACT CITY OF DANIA BEACH AT 954-924-3741".

### 2.03 PHOTOVOLTAIC PANELS

- A. The solar panels shall contain single or multi crystalline solar cells, protected on the upper surface by low iron tempered glass. The solar module must have an aluminum frame, riveted to a protective bottom surface aluminum module pan for vandal protection. All wiring must be UV resistant rated. Stainless steel hardware must be used throughout. Solar Panels must carry a 20 year manufacturer's Full Warranty for 20% power loss.
- B. Photovoltaic panels shall be IEC61215, IEEE1262 listed or UL1703 listed.
- C. No Cables and/wires will be allowed to be exposed.

### 2.04 LUMINAIRE, LED LAMP

- A. Luminaire housing shall be aluminum for corrosion resistant.
- B. The luminaire shall be 30W min. mounted at 22.5 feet from finished grade.
- C. The lamp shall provide the following minimum foot-candle (fc) illuminations: 1) 1.0 fc directly below the fixture, 2) 0.70 fc at 22.5 feet longitudinal to the fixture, 3) 0.5 fc at 45 feet longitudinal to the fixture, and 4) 0.3 fc at 22.5 feet transverse to the fixture.
- D. LED shall provide a minimum of 100,000 hour performance with 70% of initial lumen.
- E. Fixture shall provide Type II or III distribution in accordance with IESNA.
- F. Fixture must be able to comply with Florida Fish and Wildlife Conservation Commission's Turtle Friendly Lighting guidelines.
- G. Warranty:

Luminaire: 10 year Full Warranty

LED Lamp: 5 year Full Warranty  
Warranty – Ballast: 5 year Full Warranty

## 2.05 CONTROLLER / DRIVER

A. Controller/driver must be set for full dusk to dawn operation (calculated as a minimum of 13.5 hours for worst case winter operation).

B. Warranty:

Controller/Driver: 5 Year Full Warranty

## 2.06 BATTERY

A. Each system shall have two batteries. The batteries must be designed to support system operation for a minimum of 13.5 hours run time for a minimum of five (5) consecutive days. The battery must be designed for seven (7) years of operation.

B. Warranty:

Battery: Full replacement (2 years). Pro rated for 5 years

## 2.07 BATTERY ENCLOSURE

A. The enclosure must be constructed of aluminum, vented, located on the main support arm below the solar panels for shade, and access door loaded from front. All hardware must be stainless steel.

B. Warranty:

Enclosure: 20 years

## 2.08 BRACKETS AND ARMS

A. Aluminum or stainless steel hardware for corrosion resistant.

B. Total assembly, including mounting to pole must be certified by an independent, State of Florida Professional Engineer (PE) to meet or exceed the 150MPH, Exposure D Wind Event classification. Luminaire must be mounted on the arm a minimum of 6 feet from the center of the pole.

C. Warranty:

Brackets, arms, and hardware: 20 years

## 2.09 WIRE AND CONNECTIONS

A. All wire connections must be with weather resistant plugs, keyed to make installation quick and easy and to eliminate failure due to corrosion and incorrect wiring.

B. No wiring will be allowed to be exposed.

## 2.10 VANDAL RESISTANCE

A. The system must have the following elements which contribute to its being vandal resistant:

1. Protective aluminum panel pan backing for solar panel(s).

2. Tamper resistant stainless steel fittings.

## PART 3 COBRAHEAD PRODUCTS

### 3.01 DECORATIVE SOLAR LIGHT SYSTEM

- A. Cobrahead lamps shall be Sepco. SLCLLED-1 or Approved Equal. 24W
- B. Fixture installed at 20 ft mounting height.
- C. Batteries shall be installed internally within the pole (e.g. base collar).
- D. Housing and pole shall be aluminum for corrosion resistant.
- E. Finish shall be black.
- F. All fasteners shall be stainless steel.
- G. Requirements for panel, controller/driver, battery, wire/connectors, and warranties shall meet criteria listed in the following sections.

### 3.02 MOUNTING POLE

- A. The mounting pole shall be reinforced concrete, composite material or aluminum.
- B. Pole can be direct burial or bolt-down. Embedment depth or foundation must be design by Florida Licenses Professional Engineer and shall meet all applicable wind loads.
- C. Furnish each pole with a 2"x4" (max) aluminum identification tag. Submit details for approval. Secure to pole at 5'-0" height with 0.125" stainless steel rivets or screws. Include the following information: Manufacturer's Name, "THIRD-GENERATION" – Pole Number, "IN CASE OF LIGHT OUTAGE, PLEASE CONTACT CITY OF DANIA BEACH AT 954-924-3741".

### 3.03 PHOTOVOLTAIC PANELS

- A. The solar panels shall contain single or multi crystalline solar cells, protected on the upper surface by low iron tempered glass. The solar module must have an aluminum frame, riveted to a protective bottom surface aluminum module pan for vandal protection. All wiring must be UV resistant rated. Stainless steel hardware must be used throughout. Solar Panels must carry a 20 year manufacturer's Full Warranty for 20% power loss.
- B. Photovoltaic panels shall be IEC61215, IEEE1262 listed or UL1703 listed.
- C. No Cables and/wires will be allowed to be exposed.

### 3.04 LUMINAIRE, LED LAMP

- A. Luminaire housing shall be aluminum for corrosion resistant.
- B. The luminaire shall be 30W min. mounted at 22.5 feet from finished grade.
- C. The lamp shall provide the following minimum foot-candle (fc) illuminations: 1) 1.0 fc directly below the fixture, 2) 0.70 fc at 22.5 feet longitudinal to the fixture, 3) 0.5 fc at 45 feet longitudinal to the fixture, and 4) 0.3 fc at 22.5 feet transverse to the fixture.
- D. LED shall provide a minimum of 100,000 hour performance with 70% of initial lumen.
- E. Fixture shall provide Type II or III distribution in accordance with IESNA.
- F. Fixture must be able to comply with Florida Fish and Wildlife Conservation Commission's Turtle Friendly Lighting guidelines.
- G. Warranty:

Luminaire: 10 year Full Warranty

LED Lamp: 5 year Full Warranty

Warranty – Ballast: 5 year Full Warranty

### 3.05 CONTROLLER / DRIVER

A. Controller/driver must be set for full dusk to dawn operation (calculated as a minimum of 13.5 hours for worst case winter operation).

B. Warranty:

Controller/Driver: 5 Year Full Warranty

### 3.06 BATTERY

A. Each system shall have two batteries. The batteries must be designed to support system operation for a minimum of 13.5 hours run time for a minimum of five (5) consecutive days. The battery must be designed for seven (7) years of operation.

B. Warranty:

Battery: Full replacement (2 years). Pro rated for 5 years

### 3.07 BATTERY ENCLOSURE

A. The enclosure must be constructed of aluminum, vented, located on the main support arm below the solar panels for shade, and access door loaded from front. All hardware must be stainless steel.

B. Warranty:

Enclosure: 20 years

### 3.08 BRACKETS AND ARMS

A. Aluminum or stainless steel hardware for corrosion resistant.

B. Total assembly, including mounting to pole must be certified by an independent, State of Florida Professional Engineer (PE) to meet or exceed the 150MPH, Exposure D Wind Event classification. Luminaire must be mounted on the arm a minimum of 6 feet from the center of the pole.

C. Warranty:

Brackets, arms, and hardware: 20 years

### 3.09 WIRE AND CONNECTIONS

A. All wire connections must be with weather resistant plugs, keyed to make installation quick and easy and to eliminate failure due to corrosion and incorrect wiring.

B. No wiring will be allowed to be exposed.

### 3.10 VANDAL RESISTANCE

A. The system must have the following elements which contribute to its being vandal resistant:

1. Protective aluminum panel pan backing for solar panel(s).
2. Tamper resistant stainless steel fittings.

## PART 4 EXECUTION

### 4.01 INSTALLATION

Solar Powered Lighting System including pole and light fixtures must be installed according to the specific recommended installation procedures provided by the manufacturer.

### 4.02 TESTING

Provide final testing in the presence of CITY and CONSULTANT at night time. Time shall be convenient to the CITY and CONSULTANT.

END OF SECTION -



Figure 1 Location of Solar Lights by Priority (specific locations to be determined in Addenda 1)







Figure 3 – Teardrop Solar Street light and post



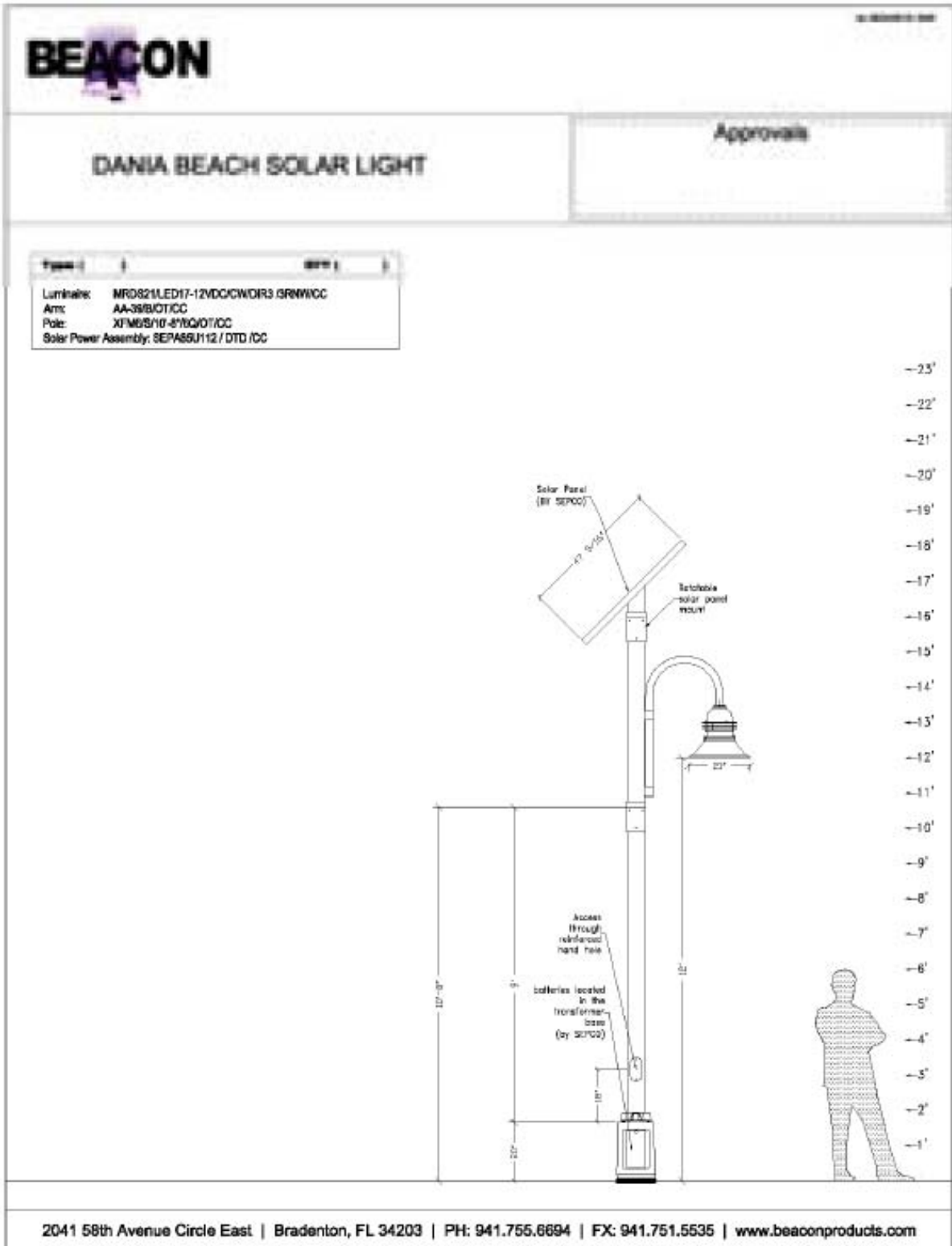


Figure 4 – Solar Light Teardrop



### **SLR / SLC Street Light Refractor / Cutoff Fixture**

#### **FEATURES & BENEFITS:**

- The Street Light Refractor fixture uses a prismatic refractor lens to evenly distribute light
- The Street Light Cutoff fixture uses flat glass lens for full cutoff light pattern
- Both fixtures are 12 VDC Compact Fluorescent and available in Induction, Metal Halide, and High Pressure Sodium
- Die-cast aluminum housing with multiple pole and surface mounting configurations

#### **SPECIFICATIONS:**

**OVERVIEW:** The light fixture assembly is a Cobrahead style fixture and comes complete with lamp and ballast used to operate the fixture from the solar charged batteries. The light fixture can be mounted anywhere up or down the pole or wall below the solar, or can be mounted separately on another pole or wall, even in the shade.

**APPLICATIONS:** Roadways, Parking Lots, Area, Perimeters

**HOUSING:** Die Cast Aluminum

**FINISH:** Gray (Other color options available)

**OPTICAL ASSEMBLY:** Prismatic Lens or Full Cutoff

**LAMPING:** 13 – 42 Watt CFL, Induction, Metal Halide, Low Pressure Sodium

**DIMENSIONS:** 29.75" Long x 13" Wide x 6.5" High

**SHIPPING WEIGHT:** 16 / 14 lbs

### **SLCLED1 Street Light Cutoff LED Fixture**

#### **FEATURES & BENEFITS:**

- The Street Light Cutoff LED fixture uses solid state / light emitting diode (LED) light source
- 12 VDC electronic dimming drivers
- Die-cast aluminum housing with multiple pole and surface mounting configurations
- Multiple light distributions available

#### **SPECIFICATIONS:**

**OVERVIEW:** The light fixture assembly is a cobrahead cutoff style fixture and comes complete with LEDs and driver used to operate the fixture from the solar charged batteries. The light fixture can be mounted anywhere on the pole or wall below the solar, or can be mounted separately on another pole or wall, even in the shade.

**APPLICATIONS:** Roadways, Parking Lots, Area, Perimeters

**HOUSING:** Die Cast Aluminum

**FINISH:** Gray or Dark Bronze

**OPTICAL ASSEMBLY:** Each LED has an individual optical lens

**LAMPING:** 15 – 60 Watt LED Type II, III, IV, V Distribution (SLCLED2 is available in a higher wattage)

**DIMENSIONS:** 29.75" Deep x 13" Wide x 6.75" High

**SHIPPING WEIGHT:** 24 lbs

Figure 5 Cobrahead Solar Light



Figure 6 Solar Cobrahead lights

# EXHIBIT "C"

## BID PROPOSAL FORM

Bid Item	Description	Quantity	Unit of Measure	Unit Cost	Total
1	Mobilization	1	LS		
2	Solar Lights – Cobra head	10	LS		
3	Solar Lights – Teardrop	8	LS		
4	Permit Allowance	1	LS	\$5,000.00	\$5,000.00
TOTAL					

### NOTES

- 1 This is a Unit Bid Item Contract
- 2 Optional - The City may at its discretion remove all or any of these items.
- 3 Actual payment will be based on actual work rendered based on the unit prices above.